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pared or prepared for defence, in which a nation is found. The chances of success in negotiation are diminished or increased in proportion as that condition sways one way or the other. The best reasons of the lamb had no weight with the wolf. We hope that a nation is trebly armed whose quarrel's just ; but it would be madness to rely on the armor of justice alone. The king of Israel, who was assured by Heaven that victory would be on his side in the coming battle, still sent forward his picked men to the front of the fight.

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ART. III. — *A System of Logic, Ratiocinative and Inductive ; being a connected View of the Principles of Evidence, and the Methods of Scientific Investigation.* By JOHN STUART MILL. London : J. W. Parker. 1843. 2 vols. pp. 1204.

WE quietly take to ourselves some merit for calling attention to these volumes, since we suppose not one in a hundred of our readers has, or can be induced to have, the slightest interest in the subject of which they treat. So much the worse for them, since they are thus led to forego a means of improvement, which, if they knew enough of the subject to be aware of their own ignorance respecting it, they would most earnestly covet. And so much the worse for us is this want of interest in the subject, since it is rather a poor sort of inspiration with which to enter on this self-inflicted duty, to know that it will be equally operose and unavailing. We are well aware that the very term Logic has become a "hissing and a by-word," even among tolerably well informed men ; and if we had nothing more to present on the subject, than a repetition of the skeleton formulæ which have hitherto figured as principles in this science, we too should deem our proposed labor worse than worthless. It would require something more than the miraculous touch of a prophet, to vivify such dry bones as these. But the work before us has nothing in common with these dead and buried things, but the name. And we wish it had not even this, since it may drive away from a valua-

ble source of self-improvement that not small class of persons, to whom *names* are *things*. Those who choose to grapple with this work will find that it presents a new view of the subject ; that it is a sort of *Novum Organum*, adapted to the state of intellectual and physical science at the present day ; and that it is treated with a breadth and comprehensiveness of thought, in a style of thorough analysis, and with a surpassingly clear and forcible diction, which entitle it to the faithful study of all who aspire to the merit of philosophical research, or even of general scholarship. But while the labor before us is thus thankless and uninspiring, in regard to the great mass of readers, we still hope to address ourselves intelligibly to an "audience, fit though few," who will understand the deep meaning of Lord Bacon, who denominates Logic the "*ars artium*," the science of science itself, and considered it as an aid to the mind not less important than that which machinery lends to the hand,\* — and to all who think it worth while to ascertain the limits of human knowledge, its first principles, and the best methods of employing and enlarging it. For such we write ; and such well know, that the field on which we propose to enter is not merely a fitting arena for manly and healthful exercise of the mind, but also one where, notwithstanding its apparent barrenness, rich and nutritive fruits are always to be gathered.

The obscurity, in which it is supposed the subject of Logic is involved, arises, as we think, not from inherent difficulties in the subject itself, but from two extraneous causes. One is the great number, and the irreconcilably conflicting character, of the definitions which have been given of it. Thus, when Logic was first made to assume a distinct form under the auspices of Zeno and his followers, it not only took cognizance of the elementary principles of human knowledge, but professedly included Rhetoric, or a diffusive mode of declamation, and also Dialectics, or the more recondite art of disputation. The Megaric school, under Euclid, carried the folly of the Porch to a still more ridiculous ex-

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\* "*Instrumentis et auxiliis res perficitur ; quibus opus est non minus ad intellectum, quam ad manum.*" — Nov. Org., Aph. III. Again he considers it as the key of the sciences : — "*Rationales scientiæ reliquarum omnino claves sunt.*" — De Aug. Sci., Lib. V., Cap. I.

treme. Aristotle, though not the first author on the subject, was the first who attempted to give a strictly scientific statement of the essential forms and processes of thought. But this was only a small part of his "*Organon*," as it has been called. It treated, also, at much length and with great acuteness, if not with remarkable perspicuity, of various methods of investigating truth and communicating it to others, and particularly of the various strategy of disputation. The Logic, so called, of the mediæval period, was nothing more than a grossly amplified and perverted form of the dogmas of the Peripatetic and Stoic schools of antiquity. It was a miserable strife of words about words; and the impatient exclamation of Seneca, himself a Stoic, in reference to the dialectics of his day, "*O pueriles ineptias*," would apply with greater force to the elaborate trifling of this period. It has been a not infrequent mistake of subsequent times, to confound Logic with different branches of the philosophy of the mind. Thus, it has been called the "art or science which treats of the laws of thought, and of those rules which the mind must observe in all consequent thinking." But "consequent thinking," we suppose, is required in poetry, in oratory, in all the arts of imitation and design, nay, in politics, and in the common conduct of affairs. Are these, then, to be included in a treatise on Logic? Even no less a thinker on these subjects than Lord Bacon falls, if we may say so, into the same misjudgment of the true nature and province of Logic. He divides it into four parts, namely, the methods of invention, judging, retaining, and delivery, or making known to others.\* The clear mind of Locke was entirely mystified on this subject, as appears from his denouncing it as being useless in the *discovery* of truth. The good Dr. Watts, too, whose Logic, to our utter confusion and dismay, we were required to learn at the University, defines the subject thus: "Logic is the art of using reason well in our own inquiries after truth, and in the *communication of it to others*." And lest we should be in any doubt in regard to the extent of the subject, he states in a note, "The word *reason*, in this place, is not confined to

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\* "*Necesse igitur est, ut totidem sunt artes rationales*" (which he comprehends under the term Logic); "*ars inquisitionis seu inventionis; ars examinis seu judicii; ars custodiæ seu memoriæ; et ars elocutionis seu traditionis*." De Aug. Sci., Lib. V., Cap. I.

the mere faculty of reasoning or inferring one thing from another, but includes *all the intellectual powers of man*." Now, if we substitute these italicized words in the place of "reason" in the definition, we shall see that Logic is a very comprehensive art indeed. Cicero, with a sufficient laxness of thought, places among the essential prerequisites of his orator, that he should be a "good" man. It is very certain that the logician, according to the excellent Dr. Watts, should be a very learned and a very *wise* one; indeed, that he should have not a little of what has been ascribed to a noted public man and writer in England, the "foible of omniscience."

It is easy to perceive, that much obscurity must rest upon a subject, of which such various and contrariant definitions have been given, most of which arise from confused and utterly erroneous apprehensions of its true nature. But there is another mistake, scarcely less prevalent, that leads to the same result. We mean the faithlessness of writers to their own erroneous and confused definitions. It is plain enough, if an author professedly addresses himself to one specific train of thought, but in the prosecution of it rambles off into a very different one, — or, if attempting to unfold the principles of one system, he is led, unconsciously to himself, to lay out his strength on another, though it may be some affiliated one, he must become, at best, but an inconsequent teacher. We know of no subject in which this vital mistake has been oftener perpetrated, than in the one before us. It might be invidious to cite examples, but those familiar with such researches will call to mind some striking instances of this *ignoratio elenchi* on a large scale. It is, indeed, one of the easiest and most fertile of the sophisms which writers unconsciously practise on themselves, and by which they confuse and mislead the minds of their readers.

It is not the least of the striking excellencies of the work of Mr. Mill, that both these causes of error are studiously and successfully avoided. In a very lucid introduction, he announces, in the most carefully chosen terms, what he means by the term Logic; and this is the more necessary, since neither this term, nor any other one in the language, gives any intimation of the subject which he is about to treat. As a preliminary step to this definition, he divides all human knowledge into two kinds. The first comprises the facts

or Beliefs of intuition or consciousness ; and the second comprises those which are the result of inference or illation ; or, to state the same distinction in different words, those which neither need nor are susceptible of proof ; and those which require to be and may be proved. This distinction is of the highest import in inquiries like these. It is not indeed, by any means, peculiar to Mr. Mill ; but it is very peculiar to him, among writers on kindred themes, to have kept it constantly in view through his whole work. Of the former kind are all the truths of the higher or Transcendental metaphysics, so called ; or those which belong to the mind inherently, without any reference to the senses or to the external world ; as, for example, our natural sensations and our mental states. They are what are called “ subjective,” in opposition to “ objective ” truths, — the “ *Noumena*,” in opposition to the “ *Phenomena*,” of the German metaphysics, — and comprise a belief in our existence as sentient beings, as distinct from the body ; a confidence in the evidence of the senses in regard to the existence of external things ; a conviction of our personal identity ; that every event must have a cause ; of the uniformity of Nature ; — in a word, those first truths which lie at the basis of all knowledge. These are not susceptible of proof. They appear of themselves, if they appear at all. They shine by an unborrowed light. No research can make them clearer ; no processes of art can add to their certainty. In a word, they are real to our consciousness, and thereby possess the highest possible proof of their reality. It is obvious, therefore, that these are matters of belief, not of proof ; and whatever may be believed or disbelieved respecting them, whether the conclusions of Father Buffier, or Reid, or Kant, or Schelling, is entirely immaterial, so far as Logic, in the system of Mr. Mill, is concerned.

But these inherent and necessary beliefs comprise but a small part of human knowledge. They are implied, indeed, in all our inquiries ; but in themselves they constitute but a small part of things known and knowable. Almost all our knowledge consists of inferences, and “ to draw inferences is the great business of life.” Every one is and must be thus employed, whether he is aware of it or not, under all circumstances, at every conscious moment of his existence. It is the only thing that the mind never ceases to do. Take

out of any man's mind all the knowledge that is strictly illative, and you leave it as blank as the fair sheet of paper to which, in its natural state, some metaphysicians have, unwisely enough, compared it. Now Logic, according to Mr. Mill, is conversant only with this sphere of thought. It is only with illations, or truths known through their ascertained connection with other known truths, that it is or can be employed. This is its sphere, we say. But we would not be understood to assert, that all who make inferences are therefore logicians, or that their inferences are logical. This brings the proper province of Logic distinctly into view. It is to supply a test for ascertaining, in any given case of inference, whether this inference be correct, and therefore trustworthy. All knowledge consists of *data*, and of inferences from these *data*. One person will make one inference, and another a different one. Which is correct? It is the high and distinctive office of Logic to answer this question. And this it does by pointing out the relations which necessarily exist between "proof and every thing it can legitimately prove," or by analyzing the process of inference. Logic, in short, is the science of proof, or of evidence. We are now prepared for the definition of it as understood by Mr. Mill, and it seems to us equally succinct, comprehensive, and just. "Logic is the science of the operations of the understanding which are subservient to the estimation of evidence; both the process itself of proceeding from known truths to [those] unknown, and all intellectual operations auxiliary to this."

Of these "auxiliary operations," one of the most important is an analysis of language, so far as the processes of reasoning are concerned; since language is both an instrument of thought, and a vehicle of communicating it to other minds. We ordinarily reason by means of words, and in long and complicated cases we must do so. Any error, then, in the use of words must vitiate the whole process. And yet further, language is the treasury of human thought. It contains, as will be more particularly shown hereafter, all the truths that all previous thinkers have ascertained or suppose themselves to have ascertained. And though these results are not to pass unquestioned, they still serve, and ought to serve, as clues to things, unless we mean to reject the collective intelligence of mankind, and, like our earliest

progenitor, construct a language for ourselves. But there is a reason more cogent than all these, why, at the very outset of the inquiries before us, the theory of language should be the first subject of the study of the logician. Without this, he cannot learn the import of propositions, and propositions are the primordial elements of all subsequent processes of logical inquiry. The object of Logic, as has been said, is to furnish a criterion by which we may distinguish between what is worthy of belief and what is not ; in other words, may know what is valid proof. Now nothing, obviously, is susceptible of proof, but what is asserted or denied. Every such assertion is a proposition. Well, therefore, has it been said by Mr. Mill, that "all truth and all error lie in propositions. What, by a convenient misapplication of an abstract term, we call a truth, is simply a true proposition." Now every proposition consists essentially of two names connected by a word (some form of the verb *to be*), denoting that one is affirmed or denied of the other. Hence, in every act of belief there must be two "namable things," and hence the necessity of analyzing, first of all, the true *import* of names ; since it is of this import, and not of the mere naked names, that an affirmation or negation is made.

Proceeding on this leading principle, that names are the clues to things, and are therefore to be studied before them, and that propositions are formed of names, Mr. Mill devotes his first book to a most profound and comprehensive analysis of names and propositions. We know of nothing to be compared with it, but that extremely valuable part of Locke's immortal Essay, his third book, "Of Words." Our author wisely avails himself, in this part of his work, of the logical language of the Schoolmen, whose speculations, in other respects sufficiently arid and innutritive, are marked with an unsurpassed, we might almost say, an unapproached, precision and accuracy in the use of general terms. Mr. Mill, for example, has borrowed from them the terms *connotative* and *non-connotative*.\* The former denotes a subject, and implies an attribute or attributes. The latter signifies a subject only, or an attribute only. Thus, all concrete general names, such as *brute*, *man*, *angel*, are *connotative*,

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\* From "*notare*, to mark, and *connotare*, to mark along with a thing, or one in addition to another."



because they denote not only things or subjects, but those possessed of certain attributes. But the terms *John*, *Thomas*, *Boston*, and almost all proper names, are *non-connotative*, because they signify a subject only. Most abstract terms, such as *whiteness*, *evenness*, *softness*, are *non-connotative*, because they signify an attribute only. But the terms *white*, *even*, *soft*, and all epithets, as denoting the things to which they are applicable, *connote* the corresponding abstract attributes. We refer, for some apparent exceptions to this general statement, to the work of Mr. Mill. It will be at once perceived how deeply this distinction of terms enters into the structure of all language. One of the great sources of the lax, indeterminate, and misty use of it is the employment of words largely connotative, without any recognized or even intelligible connotation; that is, without any precise meaning. Nothing characterizes so perfectly a style of writing quite prevalent and popular with a certain class of minds, especially at the present day, as this. And this, too, serves to solve a problem, which constantly recurs in ordinary life, and which called forth a labored explication from Principal Campbell, — “How it is that a man of sense should sometimes write nonsense and not know it, and that a man of sense should sometimes read nonsense and imagine he understands it.” Even Hobbes, one of the most profound and consecutive of thinkers, sought, like the Nominalists generally, the meaning of words in what they *denote*, instead of seeking it in what they *connote*, and thus was led into a definition of propositions, which, though just as far as it goes, Mr. Mill clearly demonstrates is only applicable to that very unimportant class of propositions in which both subject and predicate are proper names, and which, therefore, in strictness, have no *meaning* at all.

Having thus reviewed the various kinds of names as preparatory to a knowledge of things, Mr. Mill proceeds to an enumeration of all the kinds of things which are susceptible of being made predicates, or of having any thing predicated of them. This brings under a searching analysis the famous categories, or predicaments, the *summa genera*, or most general classes into which all things are to be distributed, and which, therefore, are so many highest predicates, and were supposed to include all that could be truly affirmed of every namable thing. These categories, first suggested by

Archytas, and greatly matured by Aristotle, in connection with the predicables of Porphyry, have been recognized, as is well known, with high deference in all ages, even down to the present time. They have been translated into almost all languages ; they have been explained, commented upon, epitomized, adopted by the Church of Rome, identified with its doctrines, and brought to an authoritative interpretation of the sacred writings. They furnished, especially, never-failing themes for those dialectics of the Schoolmen which Abelard, one of the clearest heads of them all, characterized as disputes "*de lanâ caprinâ*," and which prevailed with little abatement of authority down to the period of Bacon and Descartes. But these imposing and time-honored categories of the Stagyrte and his followers find small reverence at the hands of Mr. Mill. He regards them as being a "mere catalogue of the distinctions rudely marked out by the language of familiar life," an "abortive classification of existences," as being "at the same time defective and redundant,"\* and in no "case penetrating into the *rationale* of the subject." By a strict analysis of the presumed sources of human knowledge, using for this purpose the most general names that have been employed to designate the most comprehensive classes of things, he reduces the enumeration and classification of all namable things to the following.

1. Feelings or states of consciousness.
2. The minds which experience those feelings.
3. The bodies or external objects which excite certain of those feelings, together with the powers or properties whereby they excite them.
4. The successions and coexistences, the likenesses and unlikenesses, between feelings or states of consciousness.

If this classification of namable things be correct, they must comprise in themselves the signification of all names, and the substance of all facts.

To this masterly examination of the *primordia* of human knowledge succeed philosophical statements of the nature

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\* Thus they omit the most essential things, as, for example, feelings, or states of consciousness ; and repeat others under different heads, as, for example, *तत्र*, *ubi*, position in place, and *निष्ठानि*, *situs*, the same thing except in terms.

of propositions, their import, the nature and office of the copula, of classification, and of definition. The import of propositions, lying as it does at the basis of the whole science of Logic, is treated at great length, and with singular acumen and thoroughness. He adverts, in the first place, to an error which is fatal to all clearness of thought on the subject, but into which almost all writers on Logic, including such thinkers as Descartes, Leibnitz, and Locke, to say nothing of others, both in England and on the Continent, of lesser name, down to the present day, have fallen. The error is that of confounding judging with judgment, — the act of the mind with the result of that act, — what the mind does in forming the proposition with the proposition itself. In attempting, therefore, to learn what a proposition *means*, they began by endeavouring to learn how it is *formed*. The thing itself, and not the mere verbal expression of it, is with them the important matter of inquiry. But Logic, in the view of Mr. Mill, has nothing to do with the analysis of the *act* of judging. This is one of the *intellectual* phenomena, and belongs, therefore, to another science, that of Mental Philosophy, or Psychology. Connected with this mistake was another, very widely spread, that of the Conceptualists, as they are commonly called, who maintain that a proposition consists of an affirmation or denial of one *idea* (or *conception*, or whatever other term may be used to express mental representations) of another. Now, while it is true that there must be two ideas or conceptions in the mind in every act of judgment, and it is also true that these ideas or conceptions must be brought together in some way, yet something more than this is necessary, since this can be done without any act of assent or dissent. What this is which takes place in the mind, besides putting two ideas together, is, as Mr. Mill observes, “one of the most difficult of metaphysical problems.” But whatever may be the solution, it can have no concern with the import of propositions, since all these (with the exception of those relating to the mind itself) are not assertions concerning ideas, but concerning the things themselves. This *presumed* relation between two ideas, instead of the *real* relation between the *things* themselves, considered as being of essential importance in a logical proposition, seems to Mr. Mill “to be one of the most fatal errors ever introduced into the philosophy

of Logic ; and the principal cause why the theory of the science has made such inconsiderable progress during the two last centuries."

After disposing of the theory of the Nominalists, of whom Hobbes is the best representative, — namely, that the import of propositions consists in an expression of agreement or disagreement between the meanings of two *names*, which is only so far just as it is confined to proper, or abstract, or, in a word, to *non-connotative*, names, — he applies the same keen examination to a theory essentially the same as that of Hobbes, and which is now almost universally received as the true one. This is, that predication, or assertion, essentially consists in referring something to a class. Here is the basis of the far-famed "*Dictum de omni et nullo*." But, celebrated and almost universally received as it is, it is wholly repudiated by Mr. Mill. He deals with it, as we think, justly, and, as farther on we shall take some pains to show, as belonging to that class of paralogisms, or vicious Logic, which explains one thing by another which presupposes it, or the cause by the effect, instead of the effect by the cause. It may be asked, If all these prevailing systems of predication, or the import of propositions, be erroneous or false, what is the true theory, or rather the real fact, of their import ? The reply furnished by our author seems to us to be equally just, profound, and comprehensive. It is presented in a beautiful example of the argument which is technically called by the rhetoricians "progressive approach," — a mode of argument, which, if not the most strictly logical in form, is admirably adapted to a discussion like this. We can give no detail, and shall merely present the result in the simplest and fewest words possible, adopting the language of Mr. Mill. In all real propositions, that is, in all assertions about things (in contradistinction to those which are merely verbal), whatever be the form of the proposition, or whatever is nominal subject or predicate, the *real* subject is one or more of the facts or phenomena of consciousness, or some one or more of the hidden causes or powers to which we ascribe those facts ; and what is predicated or asserted, either in the affirmative or negative, of those phenomena or powers is always existence, order in place, order in time, causation, or resemblance.

This, then, is the theory of the import of propositions, re-

duced to its ultimate elements. But there is another and less abstruse expression for it, which, though it does not reach to the ultimate limits of the inquiry, may be often found useful. It has the advantage, moreover, of recognizing the commonly received distinction between subject and attribute. It is this : — “Every proposition asserts that some given subject does or does not possess some attribute ; or that some attribute is or is not (either in all or some portion of the subjects in which it is met with) conjoined with some other attribute.”

But we must hasten away from these preliminary matters. We have yet a thousand pages of solid disquisition to go through, and have not thus far even entered on “the system of Logic,” as treated in these volumes. We hope that the porch is not too large for the structure we are attempting to build up. At any rate, it is necessary to see our way clearly through it, before we can enter the main building. The nature of proof is the proper subject of Logic, and we have thus far only been considering the nature of assertion. But all who are conversant with the subject are aware, that it is necessary to ascertain the nature and import of propositions, before we can begin the inquiry into the methods by which their truth or falsehood is to be established. Besides this, it is a good reason for dwelling so long on the threshold of this work, that here lie nearly all those principles which are peculiar to our author, and upon which all his subsequent speculations are founded.

The second book is devoted to the proper subject of Logic, and this is the nature of proof or inference. When is a proposition or an assertion proved ? When it *follows*, as we say ; that is, when we admit the truth of it as a necessary consequence of something previously assented to. Thus, to *infer* what is not known from what is thus admitted to be known is to *reason*, in the widest sense of the term. This process is popularly said to be of two kinds ; reasoning from particulars to generals, and reasoning from generals to particulars. The former is called induction, the latter, ratiocination or syllogism.

The nature and functions of ratiocination or syllogism are first examined, and, notwithstanding all that has been written on this vexed subject from Zeno to Whately, we know of nothing so thorough and perspicuous as the analysis now

before us. As what we believe to be an entire error on this subject is taught (principally on the authority of Whately) in most of the colleges and schools in this country, as well as abroad, and as this error, together with some original and just views of the true nature and value of the syllogism, is here brought into distinct view by Mr. Mill, we propose to offer a very succinct account of his reasonings and results on the whole subject.

He begins by striking at once at the basis of the commonly received doctrine of the syllogism, which is the far-famed axiom already adverted to, termed by logicians the *Dictum de omni et nullo*, — that is, that whatever can be affirmed (or denied) of a class, may be affirmed (or denied) of every thing included in the class. Now, any important meaning this *dictum* ever possessed was derived from a system of metaphysics which was long since nominally repudiated, but which has nevertheless found a place, more or less distinctly recognized, in the Abstract Ideas of Locke, in the Nominalism of Hobbes and Condillac, and in the Ontology of the Kantians. We refer to the doctrine of universals considered as being real entities, and as having an objective existence independently of the separate objects which are classed under them, or as being, in fact, the only permanent things, and therefore the only proper subject of scientific inquiry. If this doctrine were true, then, indeed, the dictum would have some meaning, since it would express an intercommunity of nature and essence between these general substances and the particular substances subordinated to them. But since this theory is professedly abandoned, and it is now all but universally admitted that universals, so called, — that is, species and genera, — have no distinct existence, are not entities *per se*, and are, in fact, nothing but the individual substances placed in a class, and denoted by a common name, which indicates some attributes common to them all, then, certainly, nothing is to be learned from the statement, that whatever may be affirmed of all the individuals of a class, may be affirmed of each of those individuals of which the class is formed. It is merely an identical proposition. It is only saying, that what is true of all is true of each. If all ratiocination, then, were nothing (as it is said to be) but the application of the *dictum par éminence*, the syllogism would be, indeed, the solemn trifle

it has been called. Those, then, who wish to ascertain the true import and use of the syllogism, so far as it has any, must give up the popular notion, that the import of a proposition consists simply in referring something to, or in excluding something from, a *class*, and adopt that of Mr. Mill, which has been already stated ; namely, that it consists of an assertion of a matter of *fact*, which exists independently of all classification whatsoever.

But even with this explanation of the component parts of a syllogism, that is, of its propositions, what is the logical value of the syllogistic process ? Is it really any process at all of reasoning or inference ; that is, is it a method of proceeding from the known to the unknown ? How far does it aid us in attaining a knowledge which we did not possess before ? It seems that this question is very easy to be answered ; since it is universally admitted, that, if the conclusion contain any thing more than is *assumed* in the premises, it is, *propter hoc et pro tanto*, vicious. What new truth, then, can be *inferred* by means of the syllogism, when all that can be legitimately inferred is taken as known or granted at the outset of the process ? Certainly, there can be no *new truth* evolved in the conclusion, and, therefore, no *inference*. The syllogism obviously proceeds upon a *petitio principii*. Take, for example, the simplest form of it : —

All men are mortal ;

Socrates is a man ;

Therefore, Socrates is mortal.

Is it not plain, when we said *all* men are mortal, that we included Socrates in the number ? And if so, then what is declared in the conclusion is no *new* truth, but simply a repetition of what has been already asserted in the major premise. We are not authorized, obviously, to reason from generals to particulars, as such ; since these very generals *assume as foreknown* all the particulars which are contained under them. There can be no doubt that this is an inherent defect of the syllogism, which renders it utterly useless as a method of reasoning or inference. Indeed, properly speaking, it is no process of reasoning at all.

We are aware how opposed this conclusion is to that which popularly prevails, and which has recently received the high sanction of Archbishop Whately. He asserts,\*

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\* Elements of Logic, Book I.

that the syllogistic process, or reasoning from generals to particulars, is not *a* peculiar mode of reasoning, according to the prevailing idea of it, but that it is the philosophical analysis of *the* mode which all men *do* and *must* adopt when they reason at all. Mr. Mill, it seems to us, demonstrates this to be entirely erroneous. Not only *may* we reason from particulars to particulars, without the aid of a general proposition, but we are, in point of fact, *doing so* continually. Children, who have no capacity for abstraction or generalizing, reason habitually without the intervention of general propositions. What has pleased them in a *single* instance they infer will please them again, without stopping to compare this particular instance with some similar ones, reduced to a general proposition, or endeavouring to authenticate the conclusion by a regular syllogism or even an enthymeme. A child who has been once "burnt," and therefore "shuns the fire," reasons, very satisfactorily to himself, that fire will burn again ; but it is from *one* experiment alone, and he does not need or use the "general proposition," "fire burns," to help him to the conclusion that this or that, or any particular *form* of fire to which he is exposed, will burn. Brutes, and birds, and reptiles, and insects reason, that is, infer ; but we take it, they do not employ "general propositions" for the purpose. In our personal experience, we are continually passing from result to result without so much as thinking of a general proposition. "It is not only the village matron who, when called to a consultation upon the case of a neighbour's child, pronounces on the evil and its remedy simply on the recollection and authority of what she accounts the similar case of her Lucy." In a word, practical skill in common life, in almost all its forms, is nothing but an inference from particulars to particulars, without the slightest reference, conscious or unconscious, to general or universal propositions. We are well enough aware of what is said about suppressed premises, or arguments in the form of enthymemes, as they are technically called. But in a thousand instances of daily occurrence, where inferences are constantly made, and reasoning, in consequence, is employed, we conclude *directly* from fact to fact, from circumstance to circumstance, without the implication of any suppressed premise whatsoever.

We perceive, then, that eminent thinkers have arrived at



opposite results in their estimation of the syllogistic process ; one class regarding it as an elaborate and operose method of begging the question in an argument ; the other asserting that it is the form into which all just reasoning is to be resolved, and by which it *must* be prosecuted. It is the high distinction of Mr. Mill to have reconciled, as far as they are reconcilable, these opposing results, and to have shown, in opposition to both, the true nature and use of the syllogism, and in what its cogency lies. We can go into no detail here, but recommend the whole discussion as a just, beautiful, and exhaustive analysis of the subject. In opposition to those who regard the syllogistic theory as frivolous and useless, he considers it valuable, not indeed as a process of inference, which it is not, but as a process of *interpreting* the import of general propositions, where its true office lies. This process is important, and liable to be imperfectly and erroneously performed, and requires to be guided by rules and principles clearly ascertained and accurately observed ; and to effect this is the appropriate function of the syllogism. Its peculiar and only proper use is the verification of arguments, and in this point of view it is of indispensable use. It is not, indeed, the type, but it is the test, of reasoning. In opposition to those, on the other hand, who hold that the syllogistic process is *the only* mode of just reasoning, Mr. Mill clearly shows, that, strictly speaking, it is, as has been shown, no mode of reasoning, that is, of inferring what is unknown from what is known. All the reasoning connected with the process consists in the forming of the general proposition or the major premise, which, of course, is *antecedent* to the use of it in the syllogism. Now, this general proposition is entirely an artificial thing ; it is the mind's own creation. It is only a convenient sign or mark, like a general name, to aid the mind in verifying the truth of certain positions. And this general proposition, moreover, is not formed by arguing from generals to particulars, which is the syllogistic process, but by arguing from particulars to particulars, which is the inductive process, and is the entire reverse of the former. General propositions are merely convenient registers of the results thus obtained, and short and comprehensive formulæ for obtaining more. These, then, being always the major premises of a syllogism, the conclusion is not an inference drawn *from* the

formula, but an inference drawn *according to* the formula ; the real logical antecedents, or premises, being the *particular facts* from which the general proposition (aptly called by Mr. Mill the “ record ”) was collected by *induction*, and the proper office of the syllogism is to *interpret* the record.

If, in all ratiocinations, the minor premise were obviously true, there would be no necessity for any trains of reasoning, nor for any deductive or ratiocinative sciences. But as this is not the case, except in the simplest instances, this minor premise must itself be proved. And if, in proving this, the minor premise in the second syllogism is not in like manner obvious, it also must be proved, and thus trains of reasoning, or deductive sciences, are formed. A clear illustration of this, together with a profound examination of the characteristic property of demonstrative science, concludes the book.

The third book is devoted to the subject of induction. As all inference, according to Mr. Mill, and therefore all proof, consists of inductions more or less directly employed, together with the interpretation of inductions gathered into general principles, all our knowledge, which is not intuitive, comes from this source. The great object of the science of Logic, then, — that, indeed, which virtually comprehends all others, — should be to ascertain *what induction is, and when and how it is legitimately employed*. A philosophical analysis of this is one of exceeding intricacy. It leads down to the lowest springs of human thought, and comprehends the whole range of human inquiry. Strangely enough, however, logical writers have generally treated this subject in a slight and superficial manner ; and the stereotyped results with which, for the most part, they have contented themselves have been altogether too indefinite to be of much practical use. We still need as specific and accurate rules for induction as are already established for the syllogism, which is, as has been said, itself only a mode of interpreting inductions. These rules, indeed, have all been implied in the great advances which have been made in the physical sciences in all ages, and especially in those which strikingly mark the present era ; but no attempt, until quite recently, has been made to enucleate them, to make them distinct subjects of consciousness, and to generalize them into defined rules for future use. Attention has been, as indeed was necessary in

the first place, exclusively given to the establishment of certain *results* of inquiry, to the neglect of the *mode* by which these results have been obtained. A philosophy of this mode — in other words, a philosophy of induction or of inference, in the widest sense of the term — is the thing next to be created in the progress of human thought. This should take up the subject where its great founder left it, and should include those principles of physical science which have been involved, though often unconsciously to the inquirers themselves, in the astonishing physical discoveries made since his time. Here lies the path in which philosophical research should now proceed, and it has of late, with the instinct of true genius, been entered upon by such thinkers as Sir John F. W. Herschel, Mr. Whewell, M. Compte, and Mr. Mill.

We feel here, as everywhere in our self-imposed task, the restrictions of the narrow limits to which we are confined. The subject of induction, as treated by Mr. Mill, occupies the whole of the latter half of his first volume, and a large part of the second, and is spread through no less than twenty-five chapters. It brings into the most careful and profound discussion many of the abstruse and some of the most important questions that can be presented to the human intellect. Of this description is the true theory of induction, as distinguished from certain theories concerning it which are false ; the laws of nature ; the law of causation, with those eliminating processes which are essential to ascertain what is really causation ; the composition of causes ; the different provinces and the peculiar advantages of observation and experiment ; the various methods of observation, with apt illustrations from Liebig's theory of poisons and Wells's theory of dew ; the deductive method of inquiry ; of empirical laws ; of chance, with a searching *critique* of La Place's doctrine of chances ; of analogy ; of the evidence of causation ; of probable evidence ; and of the grounds of disbelief, including a new refutation, conducted according to the peculiar principles of the author, of the " thrice-slain " sophism of Hume respecting the Christian miracles.

It will at once be seen, from this brief summary of the leading topics discussed under the general head of Induction, that we can enter into no detail in regard to them. Each in itself might well furnish a theme for an essay or a volume.

Some of the leading thoughts and results are these. Induction is the sole process by which all inferences are made, that is, all processes by which the mind proceeds from what is known to what is unknown, from facts intuitive to facts not intuitive. All inference is from one or more particulars to some other particulars. The universal type of the reasoning process is this : " Certain individuals have a given attribute ; an individual or individuals resemble the former in certain other attributes ; therefore they resemble them also in the given attribute." To determine the validity of this inference is the province of Logic. Deduction is essentially inductive ; it differs only in employing general propositions, which themselves are previously obtained by induction, instead of employing the particulars which they represent ; as Mr. Mill expresses it, they are " marks of marks." After showing that several operations of the mind which have been considered inductions are not inductions, he states the principles upon which our belief rests, that what we have seen in one case is also the fact in innumerable other cases. One of these is, that nature is uniform, which Mr. Mill thinks is in itself an induction founded on experience. But why is it, in some cases, that a single observation is sufficient to establish a complete induction, and in others, countless myriads of similar and concurrent observations will not suffice to produce the same result ? " Whoever," says the author, " can answer this question knows more of the philosophy of Logic than the wisest of the ancients, and has solved the great problem of induction." We have no space for his own answer, and can only say, that it goes far more deeply into the subject than that of any ancient or even modern writer with whom we are conversant.

The eliminating processes of induction, or the removing of extraneous circumstances from real sequences, and the laws and modes in which it is to be performed, which constitute the very essence of the inductive process, occupy a large space in this part of the volume, and are treated with singular power and accuracy of thought. The methods of experimental induction are reduced to five canons, which our space does not permit us even to copy, but which seem to exhaust the subject, and are worth being inwrought as *habits* in all experimental inquiry. But as the processes of observation and experiment are inadequate, except in a

limited number of cases, to the discovery of truth, the deductive method, the only remaining means of inquiry, is treated at length, under the different divisions which it includes, — those of induction, ratiocination, and verification.

This is a very incomplete and sketchy account of inductive philosophy, as taught by Mr. Mill. We take leave of this part of his labors by saying, that it is, in our opinion, altogether the most original, the most comprehensive, and the most methodical account of the great subject, that is extant in any language. We only add, that the scope of induction, as it is presented in the theory before us, is not confined to the abstract inquiries of philosophy. As it consists of generalizations from the individual facts of experience, so its leading principles may be used, and ought always to be used, in the ordinary conduct of affairs. The rules of induction or inference are the same, whether we infer those general propositions which form what we call philosophy, or those less comprehensive conclusions which are necessary for our guidance in ordinary affairs ; and the Logic of the sciences, therefore, is identical with the Logic of every-day life.

Logic, or the mental process of investigating truth by means of evidence, being thus ultimately resolved in all cases, according to the system of Mr. Mill, into a process of induction, and the different rules to which it must be conformed being ascertained, the next book, the fifth, is devoted to those subsidiary operations of the mind which are presupposed in the inductive process. As this process is but the extension to a class of cases of what has been ascertained to be true in the individual instances of the class, the first of these subsidiary processes is observation. By observation is here meant, not the very important art of seeing, or of knowing how and what to see or observe, but those conditions in observation which render it a proper and trustworthy element in evidence. The indispensable rule is, that what is supposed to be observation should be really observation, and not inference, as most of what we call observation really is. This has been illustrated by Reid, Bailey, and others, but nowhere so clearly and thoroughly as here. Thus, to quote an instance, it is shown that in every observation, so called, there is at least one inference, namely, that from the impression on the vis-

ual organs to that which occasioned this impression, — and that this inference, like all other inferences, is amenable to the rules of Logic. Again, in the simplest description of an observation, there must be more asserted than there was contained in the perception itself, — namely, a resemblance or resemblances. To describe a fact, we must imply more than the fact.

But passing over this topic, and also over an admirable discussion of abstraction, in which he vindicates the common, and, as it seems to us, the obviously true doctrine, that our abstract notions are gathered from concrete objects, and not from any innate conceptions, as held by Mr. Whewell, we come to the very important subject of *naming*, as connected with the induction, which occupies, as of right it ought, nearly the whole book. We must omit all reference to details, and only observe, that, after all the rich contributions to this subject by Locke, Campbell, Stewart, Coleridge, Whewell, and others, the disquisition of our author may well be studied as an important supplement to them all. We must, however, allude briefly to one circumstance stated in full by Mr. Mill, which is of general interest, and is connected with very important results. We refer to the fact, first, we believe, brought distinctly into notice by Mr. Coleridge, that language is to be regarded “as a sacred deposit, the property of all ages, and which no one age has a right to alter”; or, as the same thought is expressed in the chapter before us, language is the “conservator of ancient experience, the keeper-alive of those thoughts and observations of by-gone ages, which may be alien to the tendencies of the passing time.” We shall try to make this plain in as few words as possible of our own.

General terms, then, and especially those general terms which are wrought into propositions, comprise, as has just been said, all the thought and knowledge and the peculiar tastes and associations of the age in which they are rife. This is their connotation, as Mr. Mill would say. But even at the period when they are most in use, it is ordinarily but a very small part of the cluster of ideas which they represent, that is present to the mind when they are employed. Indeed, it is very easy and very common to use such terms, and correctly, too, from the mere force of habit, without any distinct idea whatever. It is a vulgar error to suppose, that

*definite*, or, in fact, *any* thought, is necessary to the forming of correct sentences. It is possible, and it is not an uncommon thing, for persons to *talk* hour after hour, without *saying* any thing distinctly, and without having any definite ideas of the terms employed. Raymond Lulle (or Lully, Doctor Illuminatus, as he was called) is said to have invented a mill by means of which, certain propositions being put into the hopper, regular syllogisms were ground out by the turning of a crank ; and this seems to us not the most difficult of inventions. This vagueness and lameness of meaning in the use of general terms suggests the reason why those even of the richest import, in conversation, in staid and elaborate discourses, and especially in those of a religious nature, habitually fall lifelessly on the ear. They have lost their connotation ; they have parted with their meaning ; they have become an obscure sign of some obscurer signification ; and now suggest no more of thought than the notes of a musical instrument. Any one of the solemn words most frequently heard in our religious services, for example, such as Life, Death, Judgment, Immortality, Retribution, and above all, the name of the Ineffable One, comprises, in its whole signification, thoughts which, if clearly apprehended, would stir the spirit of the hearer to its lowest depths. This, too, suggests one reason why young converts are proverbially zealous. The meaning of the words which are expressive of their peculiar views and opinions has not yet passed, by habit, into abeyance. They yet mean something. So, too, proverbs and apothegms, which are admitted to be the very concentration of wisdom and practical morality, have small influence on the conduct of life, until their meaning has been rendered real to the mind by the home-driven lessons of personal experience.

But further ; general terms are not only thus liable to part with a portion of their meaning at all times, as they are commonly used, — but as they really embody the peculiar thoughts and illumination of the passing age, and as these thoughts and this illumination are continually changing, while the same terms are handed down from age to age, the result is, that they will be made to represent new and continually varying ideas. It is as true of the signification of words as of the words themselves, that

“Nedum sermonum stet honos, et gratia vivax.  
 Multa renascentur, quæ jam cecidère ; cadentque  
 Quæ nunc sunt in honore vocabula, si volet usus” ;

and it is the necessary effect of this constant change in the signification of words, that general terms will not only be deprived of a part of their original meaning, while the residuum of their signification will die out of it, but that new meanings will be supplied in its place. Hence appears one reason why there are few, we may even say there are no, synonymes in language at any given period. Hence, too, it is, that the “dictionary meaning” of a word is nearly no meaning at all. It is the exponent, indeed, of the signification of a term, in a “broad, blunt way,” and possibly, too, of some of the more striking transformations through which it has passed ; but obviously can only faintly indicate *the* meaning which the custom of the passing time,

“Quem penes arbitrium est, et jus, et norma loquendi,”

has established. Hence, above all, appears the sacred character of language as a deposit of human thought. It virtually contains the history of opinions on any given subject ; it reflects the varying culture of the mind from age to age ; and treasures up all that is valuable in the speculations and beliefs of the past. The half-wisdom, then, of those is apparent, who, guided by a fond idea of the importance of what they are pleased to call “clear conceptions,” “precise thought,” and “definite language,” and perceiving in old formulas of truth terms which, to such as they, seem to have no meaning, dismiss the formula altogether, and define the terms to suit their own purpose, without any reference to the treasures of past wisdom, knowledge, and experience, which they really contain. In doing this, they limit the meaning or connotation of the terms to that which prevails in common use at the time when this reasoning, though it may be “clear,” “precise,” and “definite,” is certainly the least significant ; and then use them, uniformly, and consistently enough, in this restricted and narrow sense. Old formulas of wisdom are thus stultified by this capricious and presumptuous alteration of the meaning of words, and are liable, in consequence, to be dismissed as prejudices. But if they were suffered to remain, surrounded with that respect which is due to any propositions that have vitality enough to endure from age to age, they might suggest to sober and enlightened



thinkers their original meaning, and the subsequent transformations through which it has passed. A distinct meaning of a proposition is doubtless very important; but in rendering it distinct, we are not authorized, except for most imperative and clearly avowed reasons, to discard any of the significance, which, however indistinctly, it carried with it. "The meaning of a term actually in use is not an arbitrary quantity to be *fixed*, but an unknown quantity to be *sought*." A distinct meaning of a term is not nearly so important as its true *historical* meaning. It is this which really points out the knowledge, experience, and associations of all former ages in respect to it. Is it wise to deprive ourselves of this? Have we any right to deprive our posterity of it? And yet we do this by restricting the meaning of terms long in use to some narrow and wholly unauthorized definition of our own imposing. "We continually," says Mr. Mill, "have cause to give up the opinions of our forefathers; but to tamper with their language, even to the extent of a word, is an operation of much greater responsibility, and implies, as an indispensable requisite, an accurate acquaintance with the history of the particular word, and of the opinions, which, in different stages of its progress, it served to express." Those familiar with the writings of Mr. Coleridge and his school need not be reminded of the light they have thrown on the *things* of a former age, by tracing the successive changes which *words*, their representatives, have passed through.

The fifth book is devoted to the subject of fallacies, or, to use the happy expression of Mr. Mill, to the "philosophy of error." The need of this is great, since a complete philosophy of reasoning should include not only what is true, but also what is false, seeming to be true, in inference. The maxim of the Schoolmen, "*Contrariorum eadem est scientia*," shows an unusual insight of theirs into this subject. The view which the author takes of the subject is vastly more comprehensive than is to be found elsewhere. He does not confine himself to mere facts of fallacy, as some close-thinking minds have done, and which was the favorite employment of the Schoolmen and the logomachists of antiquity; nor yet to the fallacies of ratiocination or syllogism merely, as is done by Archbishop Whately, in conformity with his very restricted view of Logic; but he treats of the

sources of merely apparent though not real evidence generally, and from which unauthorized inference, in the widest acceptation of the term, is liable to be made. After showing that lapses or mistakes, biases and indifference, do not fall within the scope of his plan, as being rather the causes of fallacies than fallacies themselves, which any prescribed rules can reach, he divides all real fallacies into five classes. These are entitled fallacies of simple inspection, or *a priori* fallacies ; fallacies of observation ; fallacies of generalization ; fallacies of ratiocination (which are those that principally occupied the keen but profitless acumen of the dialecticians of the mediæval period, and are, from them, adopted into the common manuals of Logic) ; and fallacies of confusion. Under the first of these classes, the *a priori* fallacies, he takes cognizance of a “tribe of errors” which have been accepted, not as propositions proved, but as those which need no proof. There must be, of course, such primal or necessary truths, on which to suspend a chain of inference ; since, multiply the links of the chain as much as you may, you cannot suspend it upon nothing. You only stand in greater need of something distinct from itself as a means of support. Mr. Mill, as he is not called upon by his plan to decide, so he wisely waives, the vexed questions which have divided the two great schools of Transcendental philosophy on this subject, from the earliest times. We cannot so much as indicate the range of thought he pursues in the details of this part of his general subject. It stretches over the whole field of philosophical inquiry, and the mistakes of such thinkers as Bacon, Leibnitz, Spinoza, Descartes, Coleridge, and Victor Cousin, afford him the illustrations of his system. We can only give, as a specimen of his method of treating the subject, a brief sketch of his account of the first class, or *a priori* fallacies. To this he refers a vast number of prevalent prejudices and consequent errors. One of the principal of these is that of mistaking subjective for objective facts, or, in other words, the laws of the percipient mind for laws of the perceived object ; properties of conceptions for properties of the things perceived. He considers a large proportion of error in thinking is to be referred to this source alone. Of this kind is the prejudice, that, “if we think of two things together, they must always exist together” ; “whatever can be thought of

apart exists apart" (which is the source of the personification of abstractions, and of the belief that a name necessarily connotes or implies the existence of a separate entity corresponding with the name); the fallacy of the "sufficient reason"; that "differences in nature correspond to the distinctions in language"; that a "phenomenon cannot have more than one cause" (which, according to Mr. Mill, was the grand mistake of Bacon, and which has rendered his system of inductive Logic comparatively useless); and that ancient, and yet now almost universally prevailing, error, that the "conditions of a phenomenon must resemble the phenomenon itself." All these fallacies, as well as those belonging to the remaining four classes, to which we can only refer, are illustrated with an affluence of learning, a clearness of insight, and a manly and effective power of statement, which, prevailing as they do throughout these volumes, concur to stamp this part of them with high and distinctive value.

The exposition of the principles of Logic, or the theory of proof, properly terminates with the fifth book. The sixth and last is a supplemental one, in which the results which the author supposes himself to have established are brought to bear on the most important of all inquiries, the moral sciences. If "the proper study of mankind is man," considered both as an individual and as a member of society, it is also incomparably the most difficult study in which man can be engaged. It has occupied the attention of the best thinkers in all time, yet remains, beyond question, the most empirical of all subjects of human research. It is the noble aim of Mr. Mill to do something towards removing "this blot from the face of science," by applying, or rather by indicating the true method of applying, those principles of Logic, in his broad use of the term, which it has been his object to ascertain, to this highest and most important of all themes. No person has better claims to be respectfully heard on this subject than our author, since he has for years held a very prominent place among the best thinkers on moral and political science in Europe; and the essay, in itself considered, fully sustains him in this lofty position. We shall present a sketch of it within the briefest possible outline.

Is there, or can there be, a science of human nature, in

the same sense that there are sciences relating to most of the phenomena of the external world? In other words, is there any such uniformity of sequences in the actions of men as is sufficient to lay the foundation for a science? Mr. Mill, in opposition to the common notions on this subject, and, as we think, with entire correctness, answers this question in the affirmative.

But if so, how can man be a free agent? The dictum of Dr. Johnson, with which he was accustomed to cut short the ever-renewed prosings on this question, which have prevailed, at least, ever since the time of Pelagius, “*I know I am free, and that ’s enough,*” still remains in full force, and is a sufficient proof of the mere fact of human freedom. There is no getting behind or before, above or beneath, our consciousness in these matters. Mr. Mill attempts to show, and we think successfully, that there is no contrariety between this “free will, and such a constant sequence in human actions as may render them reducible to general laws; in other words, to scientific arrangement.” But this, he admits, holds true only to a certain extent.\* It only extends to general tendencies and proximate results, and must fall far beneath the exactness of mathematics, or even that of astronomy, the most perfect of the sciences. But it extends far enough for practical purposes. This constant sequence is traceable quite as far in human actions as in many of the less perfect sciences; as, for example, in meteorology, in the theory of the tides (or, as Mr. Whewell calls it, tidology), and, indeed, in most of the practical sciences. Certain leading phenomena in the actions of moral agents obey a constant rule of succession, and are disturbed only by circumstances of a casual (as we in our ignorance are accustomed heathenishly to say), and an unessential and transitory character, which do not interfere at all with the establishment of general practical rules. These anomalies, yet further, vanish more and more, as our inquiries extend from individuals to masses of men. Empirical laws, or those which, though not abstract, universal, or casual, yet hold true in all cases subject to our observation, may be ascertain-

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\* We cannot think, as has recently been asserted, that “the operations of life and intellect have all the precision of mathematics”; at least, that they have such precision, so far as they are cognizable by human minds, whatever may be the case with higher intelligences.

ed in regard to the human mind, and in the consequent acts of human agents, as well as in almost all the experimental sciences ; from such approximations, in fact, these sciences are formed. These empirical laws constitute the "common wisdom of common life" ; they are *leges non scriptæ*, continually recognized and acted upon in the common conduct of affairs. They are the "*axiomata media*" of Lord Bacon, or what Locke calls "intermediate principles" ; that is, signs or marks for practical guidance between ultimate facts and individual cases, to which, like the theorems in a mathematical demonstration (which, having been once proved, are henceforth taken for granted), the mind may refer, without going back to the result of the highest generalization.

How, then, are these to be ascertained ? As these approximate rules have their ultimate source in the *laws* of the mind, or in psychology considered as distinct from all speculations on the *nature* of the mind, they must be sought there. Accordingly, a full and luminous chapter is devoted to those laws of mind which the author considers established, and for which he is, confessedly, greatly indebted to the previous researches of his father. Then, by a process of deduction, since observation and experiment, the only other methods of inquiry, are out of the question (on account of the intricate nature and numberless and ever-changing character of the phenomena concerned), these proximate rules are formed. These intermediate rules or principles, thus deduced from the most general laws of the mind, taken in connection with as many particular facts as possible, constitute the science of "ethology," or the formation of character.

Again, can there be a social science, or a science of the phenomena of social life ? It is obvious, at first view, that, if ethology, in the sense just defined, that is, the science of man regarded as an individual, is difficult to be formed, the science of associated masses of individuals, or "sociology," as Mr. Mill, after M. Comte, chooses to call it, must be much more so ; since the phenomena which are to be classed, and referred to ultimate laws or generalizations, are greatly increased and diversified. The very conception of such a science, in the view here taken of it, has only here and there dawned on a few insulated minds, and has nowhere been carried to any definite result. Speculations, indeed, on the general subject are coeval and coextensive

with the history of recorded thought ; but the inquiry has been, not whether social phenomena have any specific bearings and natural tendencies of their own, but whether, on the whole, it were possible or expedient, in any given cases, to adopt such an institution, or such a law, or such a form of government ; and not a few have subscribed to the well known jingling nonsense,

“ For forms of government let fools contest ;  
Whate’er is best administered is best.”

The “ practical ” men, so called, have been the favorite politicians, and, in perfect keeping with their “ practical ” character, their experiments have been what Lord Bacon denominates the “ *fructifera*,” and not the “ *lucifera experimenta*.” Mr. Mill thinks differently. He considers all social phenomena as being nothing more than the acts of individuals, which receive their particular character from the peculiar environment of circumstances in which masses of human beings are called to act. And if, therefore, he has shown that the acts of individuals are referable to fixed and general laws, the same is true of the acts of individuals in associated masses. The difficulty of prosecuting the latter subject is, doubtless, as has been intimated, greatly increased, but enough of assurance may still be obtained for important “ guidance,” if not for “ prediction.”

In proceeding to ascertain the true method of constructing the social science, he begins by repudiating two distinct methods of procedure which have hitherto guided, or seriously influenced, inquirers on this theme in all ages. One he denominates the experimental or chemical method. This proceeds on the vital mistake, that man in social life is something different from man considered as an individual ; that, in the mixtures and attritions of society, the individual loses his individuality. Hence, inquirers of this school will tolerate no reference to the general principles of human nature, but demand, in all cases, a “ specific experiment.” These, too, are the “ practical ” or “ common-sense ” men, as they would fain be called, who take it for granted, that human beings, when mixed together, become, like the residuum of certain chemical agents when brought into contact, a certain *tertium quid*, whose properties and agencies, being entirely distinct

from those of either of the component parts, can be ascertained only by "experiment."

The other method, denominated by Mr. Mill the geometrical or abstract one, is a vastly more respectable mistake than the former, since, in opposition to that, it proceeds upon the obvious fact, that the social phenomena are governed by the laws of the human mind, and that government and public policy should be referred to these laws as their ultimate basis. In a word, the advocates of this system assume that social science must be a deductive science. Their mistake lies in over-simplifying the laws which govern men in associated life. These laws, unlike those of geometry (which is obviously the type of their system), have reference, not to *coexistent* facts, but to those which are *successive*, and are, moreover, as those of geometry are not, exposed to *conflicting forces*, and to those, yet further, which are not, like those of number and quantity, few, simple, and uniform, but on the contrary, are innumerable, infinitely complex, and ever varying. Hence the mistake of this class of thinkers. They would direct the politics and the policy of a people by inflexible maxims, abstract principles, universal prescriptions, and by some single theory or sole rule. Thus, Hobbes held that all government is founded on the emotion of fear, and that the common bond which holds men together in society is a common dread of each other. Bentham and his followers consider that self-interest is the universal principle of union. The difficulty with this class of politicians is, that they have but one idea, while that of the former class is, that they have no determinate idea at all. We do not pause to inquire how many there may be in our national and state legislatures, who are not to be classed under one or the other of these broad categories.

In opposition to both, Mr. Mill considers the social science, or sociology, as being strictly a deductive, or, as he terms it, a "concrete deductive" one. In his own words,—"It infers the laws of each effect from the laws of causation upon which that effect depends; not, however, from the law of merely one cause, as in the geometrical method; but by considering all the causes which conjunctly influence the effect, and compounding their laws with one another." He considers any real difficulty in establishing and applying these principles, to consist in the countless number of the

*data* which must be taken into view, and not in the number or complexity of the laws which they involve ; and he holds that any mistakes arising from thus applying the concrete deductive method to sociology may be corrected by the processes of verification (already laid down), as they are in fact corrected in respect to physical inquiries. He remarks, yet further, that certain facts, in the infinite variety which are continually taking place in social life, are connected together by certain tendencies or affiliations, by which they may be reduced to classes, and then studied apart, since the results are the products of a *consensus* of causes, or of laws more or less general. Hence, specific sciences may be carried out of the general body of the social science, — such as political economy, for example, which takes up those phenomena which spring from the desire of wealth ; and such too is political ethnology, or the study of those causes which go to form the type of national character in any country or age.

But we can now only allude to these topics thus briefly, and therefore, if for no other reason, imperfectly. We again refer those of our readers who would pursue these inquiries intelligibly and philosophically, to the chapters before us, as containing some of the most suggestive and profound remarks and original views that are extant on these profound and prolific themes, and as embodying incidentally and succinctly many of the most important results which have been obtained in social science, from the times of Aristotle and Plato down to those of Bentham and M. Comte. No people are in greater need of such studies than we are, not only because our institutions are what we choose to make them, and are in a formative or plastic state, but also because, as it seems to us, political knowledge has been in a state of decadency since the era of those giant founders of our political fabric, Hamilton, Madison, Jay, the elder Adams, and Marshall ; while sciolists, and pretenders, and political empirics, of all grades, in high places and low, have alarmingly multiplied, like vermin, in the political darkness which has been gathering around us.

The book is concluded by a chapter on the “Logic of Practice, or Art ; including Morality and Policy.” Art is distinguished from science in this : science inquires, art prescribes ; the one explains, the other dictates ; the former asserts, the latter enjoins ; the indicative mood is used by the



one, the imperative by the other. Art is a practical result of science ; it is a principle embodied in an act ; it is a theory made vital and carried to a definite result. " The reasons of a maxim of policy, or of any other rule of art, can be no other than the theorems of the corresponding science " ; and in conformity with this rule, practical " ethics or morality is properly a portion of the art corresponding to the sciences of human nature and society." What, then, is the Logic of art as distinguished from that of science ? The answer is, that the rules of art should be constantly referred to the laws of the science of which it is the practical result, and not to principles, or prescriptions, or usages of its own. The complete art of any matter includes a selection of such a portion from the (corresponding) science as is necessary to show on what conditions the effects, which the art aims at producing, depend. This is a rule of signal significance amidst professional conventionalities, connoisseurship, the cant of criticism, and slavery to merely practical maxims. Hence arises again the necessity of an intermediate set of principles (*axiomata media*, spoken of above), which, being derived from the more general truths of the affiliated science, may serve as the *working formulæ*, so to speak, in the various arts. The art of navigation, in its present state, may well illustrate these views of art.\*

In applying this Logic of art to that part of practice which is called morality, it is to be kept in mind that there are two distinct classes of cases to be considered. One is that which includes all those cases in which an implicit obedience to a prescribed rule is an imperative duty ; the other is that where we are left to ascertain our duties for ourselves, and on our own responsibility. In regard to the former, the rules should be simple, intelligible, easily called to mind, determinate, and fixed ; as, for example, the rule of veracity. In all such instances of practical ethics, the method should be entirely ratiocinative, or a regular process of interpreting the general rule ; and this, too, whencesoever it may be derived, whether from a philosophic estimate of tendencies, or from intuition, or from direct revelation.

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\* The proposed work of M. Comte, referred to by Mr. Mill in a note, " On the General Means which Man possesses of acting upon Nature " (including, of course, the framing of the " intermediate principles " above mentioned), must make an era in the science of art.

In the only other class of cases remaining, namely, those in which the agent is left at liberty to ascertain for himself what his duty is, the method of ethics is the same as in all other methods of practice. We are to select some general rule, and then deduce from it those minor and specific rules of conduct for ourselves, which the conditions of the question require.

We cannot dismiss this work without adverting to the style in which it is written. This is one of its distinctive and notable excellencies. It is free, simple, exact, manly, idiomatic, and forcible. The author seems, without an effort, to choose the "*ipsissima verba*" to express his meaning; so that he achieves the last grace of mere style, that of presenting his thought not only with crystal clearness, but with an illumination borrowed from the medium through which it is presented, without calling attention, in the slightest degree, to the medium itself. There is no tremulous confusion or darkness thrown upon his meaning from indistinctness of thought, or from the shade or glimmer of inappropriate terms. There is no affectation, no straining after effect, no artistical manufacture of sentences; and while he seems to hold all mere ornament in sovereign disregard, he does not allow a rapt and pleased attention to flag for a moment. His diction is not so bold and literal as that of Locke and Reid; it has none of the labored elegance and classic finish of Dugald Stewart; it possesses not the crisp sententiousness, pointed epithets, and balanced antitheses of Whately; it is as far removed as possible from the exuberant efflorescence of Brown; and yet it is to be preferred before them all, even in point of attractiveness, on account of its fitness, transparency, point, and ever-onward movement of thought. If this high praise is to be at all chastened, it must be for an occasional prolixity, which, however, obviously arises from a desire to be perspicuous above all things.

We have now completed the task first proposed, that of giving such an account as our limits would allow of the work before us. We have thought it due equally to the eminent author, to the intrinsic value of his labors, and to the edification of our readers, to present the results of his inquiries, rather than to offer any speculations of our own. Our estimate of the volumes, if it be thought of any importance, is sufficiently intimated by the running commentary which al-

most unconsciously has accompanied our analysis. We could not, indeed, even if it were thought worth while, here enter into a careful and minute detail on this subject. There are some important positions which we are not at all prepared to admit ; such, for example, as that our idea of the uniformity of nature is an induction from experience, that a body can act where it is not, and others of less importance. But as a whole, we take leave of the work with the confident prediction, that all who are competent to judge of the subject will allow it to be a most original, comprehensive, and thoroughly considered exposition of the subject of which it treats, and one which will bear a favorable comparison with any similar product of the English mind, in any age. None who wish to see a chart of the whole range of human knowledge, with its lines drawn by a skilled and firm hand, and with its depths and shallows accurately defined, together with an accurate determination of the true processes of human thought in the pursuit of truth, can wisely forego the thorough study of these volumes. Possessing such high claims to notice, we have been surprised at the small impression which the work seems to have made abroad. Neither of the leading Quarterly Reviews, we believe, has noticed it ; while works on kindred subjects, which are not to be named in connection with it, have received elaborate attention. We sincerely hope that it will meet with a better recognition in our own land. Certain it is, that no people need such solid and profound researches more than we do ; since superficialness, in all departments of study, is the crying sin of our country and age. The idolatry of wealth, and the engrossing and often unscrupulous pursuit of it ; the importunate calls of active and professional life ; the torrents of silliness, under the form of light reading, with which the American mind is deluged ; the heat and savagery of the poor and wicked game of politics ; the exclusive devotion of self-complacently called "practical" men to "practical" pursuits, so called, — leave little time and less desire for earnest and persevering labor of the mind. We hope there are some signs that better thinkers are arising amongst us. We trust that the ingenuous youth of our country, who are pressing forward to take its destinies in hand, will feel themselves charged with the large and noble mission of extending the range of lettered acquisition, and of promoting better habits

of research. It is quite time we had outgrown the superficial modes of instruction and attainment, through which, in our national pupilage, we have been passing. It is quite time to "put away," among "childish things," those compends and abridgments, those short cuts and railway passages in the vast domains of literature and science, which are intended to supersede the necessity of mental labor, and to relieve inquirers from the "insupportable fatigue of thought." To all who are sick of such miserable pretences and labor-saving desires we confidently recommend the volumes before us, as a manly and inspiring model of a better intellectual culture, and a signally important means of carrying forward this culture to the best results.

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ART. IV. — *Lives of Men of Letters and Science, who flourished in the Time of George the Third.* By HENRY, LORD BROUGHAM. Philadelphia: Carey & Hart. 1845. 12mo. pp. 295.

THERE can be no doubt that Lord Brougham, however he may be estimated in future times as a statesman, will figure as one of the most remarkable men of the age in which he lives. He is chiefly distinguished for his restless, impatient, feverish activity of mind, a trait not common among the sons of men, few of whom have any quick spring of action within to drive them to incessant exertion, but generally require external inducements of interest or passion to bring forth all their powers. As an orator, he has appeared preëminent among the great, — exerting a mighty influence in favor of some essential reforms in the government of his country, which, mainly because they were so necessary, were fiercely and bitterly resisted. As a lawyer, he has been popular and successful, though generally allowed to be unsuited to the high judicial station for which he was thought the very man till he had reached it. As a lover of his race, he is ever ready to exert himself in the cause of humanity, and not more savage, perhaps, than is common with the philanthropists of the day. As a man, giving no single impression of his own character, but hurrying on through perpetual changes, where neither